

CLAIM AMENDMENTS

Claims 1-11 (canceled)

Claim 12 (previously presented): The additive concentrate of claim 46 wherein the diluent displays Brookfield viscosities measured by procedure ASTM D-2983 ranging from about 50 to about 400 centipoise at -26°C and from about 100 to about 1500 centipoise at -40°C.

Claim 13 (previously presented): The additive concentrate of claim 46 wherein the diluent is a mineral oil.

Claim 14 (original): The additive concentrate of claim 13 wherein the mineral oil consists essentially of hydrotreated naphthenic oil.

Claim 15 (previously presented): The additive concentrate of claim 46 wherein the diluent is a synthetic oil.

Claim 16 (original): The additive concentrate of claim 15 wherein the synthetic oil is an ester, a polyalphaolefin oligomer or an alkylated benzene.

Claim 17 (previously presented): The additive concentrate of claim 46 comprising from about 25% to about 90% by weight of copolymer and from about 10% to about 75% by weight of diluent.

Claim 18 (original): The additive concentrate of claim 17 comprising from about 35% to about 80% by weight of copolymer and from about 20% to about 65% by weight of diluent.

Claims 19-44 (canceled)

Claim 45 (previously presented): The lubricating oil composition of claim 63 wherein the oil of lubricating viscosity comprises a mixture of mineral oil and synthetic oils.

Claim 46 (currently amended): An additive concentrate comprising a nitrogen-containing copolymer units derived from

- (A) from about ~~30~~5% to about ~~60~~75% by weight of alkyl acrylate ester monomers containing from 1 to 11 carbon atoms in the alkyl group;
- (B) from about ~~40~~25% to about ~~70~~95% by weight of alkyl acrylate ester monomers containing from 12 to about 24 carbon atoms in the alkyl group; and
- (C) from about 0.~~5~~1 % to about ~~5~~20% by weight of at least one nitrogen containing monomer selected from the group consisting of vinyl substituted nitrogen heterocyclic monomers, N,N-dialkylaminoalkyl acrylate monomers, N,N-dialkylaminoalkyl acrylamide monomers and tertiary-alkyl acrylamides, provided that the total equals 100%.

Claim 47 (canceled)

Claim 48 (currently amended): The additive concentrate ~~of the~~ claim 46 wherein monomer (A) comprises at least 5% by weight of alkyl acrylate esters having from 4 to 11 carbon atoms in the alkyl group.

Claim 49 (previously presented): The additive concentrate of claim 46 wherein monomer (A) comprises from about 10% to about 40% by weight of alkyl acrylate esters having from 1 to 4 carbon atoms in the alkyl group.

Claim 50 (previously presented): The additive concentrate of claim 46 wherein monomer (A) comprises from about 60% to about 90% by weight of alkyl acrylate esters having from 9 to 11 carbon atoms in the alkyl group.

Claim 51 (previously presented): The additive concentrate of claim 46 wherein the nitrogen containing monomer is an N-vinyl substituted heterocyclic monomer.

Claim 52 (previously presented): The additive concentrate of claim 51 wherein the N-vinyl substituted heterocyclic monomer is at least one member of the group consisting of N-vinyl imidazole, N-vinyl pyrrolidinone and N-vinyl caprolactam.

Claim 53 (previously presented): The additive concentrate of claim 46 wherein the vinyl substituted heterocyclic monomer is a vinyl pyridine.

Claim 54 (previously presented): The additive concentrate of claim 54 wherein the nitrogen containing monomer is a N,N-dialkylaminoalkyl acrylamide or acrylate wherein each alkyl or aminoalkyl group contains, independently, from 1 to about 8 carbon atoms.

Claim 55 (previously presented): The additive concentrate of claim 46 wherein the nitrogen containing monomer is tertiary butyl acrylamide.

Claim 56 (currently amended): The additive concentrate of claim 46 wherein (C) the nitrogen containing monomer is grafted onto an alkyl acrylate copolymer containing units derived from

(A) from about ~~30~~5% to about ~~60~~75% by weight of alkyl acrylate ester monomers containing from 1 to 11 carbon atoms in the alkyl group and

(B) from about ~~40~~25% to about ~~70~~95% by weight of alkyl acrylate ester monomers containing from 12 to about 24 carbon atoms in the alkyl group.

Claim 57 (previously presented): The additive concentrate of claim 46 wherein (C) the nitrogen containing monomer is incorporated as a comonomer in an alkyl acrylate polymer.

Claim 58 (previously presented): The additive concentrate of claim 56 wherein monomer (A) comprises at least 5% by weight of alkyl acrylate esters containing from 4 to carbon atoms in the alkyl group.

Claim 59 (previously presented): The additive concentrate of claim 46 wherein the copolymer has a number average molecular weight ranging from about 10,000 to about 300,000.

Claim 60 (previously presented): The additive concentrate of claim 59 wherein the number average molecular weight of the copolymer ranges from about 30,000 to about 100,000.

Claim 61 (previously presented): The additive concentrate of claim 59 wherein the copolymer has polydispersity values ranging from about 1.5 to about 5.

Claim 62 (previously presented): The additive concentrate of claim 46 wherein the alkyl acrylate ester monomers comprise alkyl methacrylate esters.

Claim 63 (currently amended) A lubricating oil composition comprising a major amount of an oil of lubricating viscosity and a minor amount of a nitrogen-containing copolymer comprising units derived from

(A) from about 305% to about 6075% by weight of alkyl acrylate ester monomers containing from 1 to 11 carbon atoms in the alkyl group;

(B) from about 4025% to about 7095% by weight of alkyl acrylate ester monomers containing from 12 to about 24 carbon atoms in the alkyl group; and

(C) from about 0.54 % to about 520% by weight of at least one nitrogen containing monomer selected from the group consisting of vinyl substituted nitrogen heterocyclic monomers, N,N-dialkylaminoalkyl acrylate monomers, N,N-dialkylaminoalkyl acrylamide monomers and tertiary-alkyl acrylamides, provided that the total equals 100%.

Claim 64 (previously presented): The lubricating oil composition of claim 63 wherein the nitrogen containing monomer (C) is grafted onto a polyacylate copolymer derived from monomers (A) and (B).

RESPONSE AND REQUEST FOR RECONSIDERATION

Applicants have amended claims 46, 56, 63 and deleted claim 47. Thus, claims 12-18 and 46-64 are pending in the application. The current status of all the claims is shown in the Claim Amendment section of this amendment. It is requested that the Examiner reconsider the present application in view of the above amendments and following remarks.

Claims 12-18 and 46-64 are rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Pennewiss (4,867,894). Applicants respectfully traverse.

Pennewiss teaches additives with pour point lowering action consisting of a very broadly defined polymer and a material for preparing the polymer involving free radical initiated polymerization of a broadly defined range of monomers. The disclosure teaches a material employing any combination of an extremely broad range of possible combinations of monomers. While the disclosure may encompass Applicants' invention, it does not directly or implicitly teach or suggest Applicants' specifically claimed invention.

By a careful selection of amounts and components from the amounts and components recited in Pennewiss one might arrive at Applicants' specific type of polymer and its concentrates. However, because of the extensive disclosure in Pennewiss it would take an unwarranted amount of experimentation for the skilled person to arrive at the polymer concentrate claimed in the instant application. Pennewiss lacks sufficient direction or guidance to direct the skilled person to Applicants' claimed material.

Applicants have turned to the description contained in Pennewiss, and particularly the examples of additives to determine whether anything in those passages teaches or suggests Applicants' claimed material. Additive examples A-F do not contain units derived from nitrogen containing monomers. Additive Example G employs 4.8 % of the total monomer charge as methyl methacrylate, about 15% of the minimum 30% recited in the claims. The nitrogen-containing monomer constitutes 7.5% by weight, well over the 5% by weight maximum permitted by claim 46. The maximum amount of monomers falling within the range for component (B) of the instant process is 70%. The

corresponding amount in additive Example G is 87%, 24% greater than the maximum permitted by the instant claims.

Example H employs 4.7% of methyl methacrylate, only 15% of the minimum required by the instant claims. The other monomers used in the process described in this example are likewise far removed from the amounts required by the instant claims. The nitrogen-containing monomer constitutes 8.1% by weight of the charge, substantially exceeding the 5% maximum permitted by the instant claims, and the C12-18 monomer constitutes over 87% of the total charge, far in excess of the 70% maximum permitted by the instant claims.

Pennewiss has an extremely broad disclosure. None of the teachings or examples even remotely approach the scope of the claims of the instant invention, the amounts and types being different from or far exceeding or substantially reduced in quantity compared to the amounts used in the materials of the instant claims.

All features of Applicants' materials, including amounts of monomers, are important. Deviating therefrom does not result in production of the desired polymer. Since Pennewiss lacks any teaching of specific combinations of acrylate monomers, Pennewiss does not anticipate the instant claims nor does it render the instant claims obvious.

With regard to the obvious type non-statutory double patenting rejection, enclosed is a terminal disclaimer which will obviate the Examiner's rejection.

Conclusion.

For the foregoing reasons it is submitted that the present claims are in condition for allowance. The foregoing remarks are believed to be a full and complete response to the outstanding office action. Therefore an early and favorable reconsideration is respectfully requested. If the Examiner believes that only minor issues remain to be resolved, a telephone call to the Undersigned is suggested.

Any required fees or any deficiency or overpayment in fees should be charged or credited to deposit account 12-2275 (The Lubrizol Corporation).

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David M. Shold". The signature is written in a cursive, flowing style.

Phone: (440) 347-1601 The Lubrizol Corporation
Telefax: (440) 347-1110 29400 Lakeland Blvd.
j:\jpfcases\2705-05response1-14-04 Wickliffe, OH 44092

David M. Shold
Attorney for Applicant
Reg. No. 31,664